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THE PROBLEM OF KNOWLEDGE

THE realist platform promulgated in this JOURNAL, and the discussions to which it has since given rise, have led me to try to formulate the views which I should incline to defend. I do not unfortunately myself at present feel anything so solid as a platform beneath my feet. In this paper I propose to describe the kind of makeshift raft upon which, with my heart in my mouth, I venture out upon the stormy sea of speculation. My views are more negative than positive, but the negations involve assertions sufficiently definite to carry me into waters dangerously deep, or else perhaps into befogged shallows where rocks abound. The reader may choose the one or the other metaphor according as what follows does or does not meet with his sympathetic approval. The views which I shall develop, in so far as they have historical affiliations, are chiefly inspired by two thinkers, one older and one contemporary, by Kant and by Bergson.

For me personally, the chief and most pressing problem in the theory of knowledge is to reconcile objectivism or realism with phenomenalism, and both with that individualistic standpoint which the nature of our self-consciousness seems to force upon each of us. A satisfactory theory of knowledge must, I should say, be at once realistic, phenomenalistic, and individualistic. Realistic, because subjectivism has been demonstrated to be untenable. Phenomenalistic, because it seems impossible to regard the world known in sense perception, or even in the natural sciences, as any thing but a quite partial and very imperfect representation of the real. Individualistic, because, though our experience reveals a wider and common world to which we belong and out of which we have arisen, its complementary and equally striking aspect lies in the privacy of the inner life.

The general problem of knowledge accordingly falls into two subordinate problems, each of which has its own peculiar difficulties. First, the reconciliation of the contention that we apprehend

something that is non-mental with recognition of the fact that what we apprehend is in the form apprehended not genuinely real. Secondly, the reconciliation of both objectivism and phenomenalism, but especially of phenomenalism, with the requirements of self-consciousness. I say, especially of phenomenalism, because if the phenomenalism is thoroughgoing (and it must be if we are really to steer clear of subjectivism), it will apply to the self as truly as to the not-self. For that reason it seems easier to combine individualism with subjectivism than with phenomenalism. Kant and Bergson seem to me so especially helpful in this inquiry just because it is with these two problems that they are constantly wrestling.

Let me, at starting, indicate in the briefest manner the criticisms which may be passed upon subjective and upon objective (or Hegelian) idealism. The fundamental objection to subjective idealism, as found, for instance, in Locke's philosophy, is that it sets our representations in an impossible twofold relation to objects, first, as their mechanical effects, and secondly, as their apprehensions. There exists, on this view, an irresolvable conflict between the function of sensations and their origin. The function of sensations is cognitive; their origin is mechanical. As cognitive they stand to objects in a relation of inclusion. They reveal the objects, reduplicating them in image within the mind. Yet in their origin they are effects, mechanically generated by the action of material bodies upon the sense organs and brain. As mechanical effects, there is no guarantee that they resemble their causes; and if we may argue from other forms of mechanical causation, there is little likelihood that they do. They stand to their first causes in a relation of exclusion, separated from them by a large number of varying intermediate processes. There is thus, to repeat, a conflict between their function and their origin. It is their origin in the external objects that guarantees their validity; and yet the very nature of this relation invalidates their cognitive claims. It can also, I think, be shown that in the statement of its position, subjective idealism is guilty of arguing from a realistic starting-point to an idealistic concluson irreconcilable therewith. This is especially true of subjectivism in its extreme Berkeleian form. That argument has, however, been so often elaborated that its repetition is needless.[1]

The criticism to be passed upon objective idealism is of a different kind, namely, that it either ignores the problem of the relation of mind and body, or else gives a solution which is quite inadequate. It proceeds by emphasizing the logical relation of necessary implication which holds between self-knowing and the objects known. It

[1] I have given a statement of it in an article in the *Philosophical Review*, Vol. XVII., p. 138 ff.

argues that it is the very nature of a cognitive process to transcend itself, revealing to the mind real, independent, permanent objects. The distinction between subject and object implies, however, an underlying unity, an absolute self-consciousness, that conditions and unifies both. To this absolute self-consciousness sensations and all consciousnesses are due.

Now, even supposing that these relations of mutual implication—between subject and object, or between both and an absolute self-consciousness—could be granted as conclusively proved, the problem of the relation of mind and body would still remain unconsidered. The only answer to this problem which, apparently, objective idealism is capable of giving, is the answer of Berkeley, more adequately stated, but still in essentials the same, namely, that the existence of the brain is necessary in order to complete our system of natural science, to develop its point of view universally, but is never in any sense the dynamical condition of our conscious life. The conscious can not originate in the unconscious. Our sensations are due, not to our brain states, but to an absolute reality that comes to consciousness of itself in the finite mind.

Of course, stated in this bald fashion, no objective idealist will accept such an interpretation of his position. He is ready to admit that our having a sensation of red light is dependent upon a brain state caused by ether waves acting on the retina, but that, as I should contend, is a fact of which he can give no consistent account.

That the body is the organ of our activities can not be doubted. The question which ought to be explicitly raised and definitely answered by objective idealism is as to whether or not the brain is likewise the organ of our consciousness. If it is also the organ of our consciousness, then in what terms is its cognitive function to be conceived? That is a question to which, as it seems to me, objective idealism has given no satisfactory answer. It is a question which it persistently ignores.

The chief objection, therefore, to subjective idealism is that it regards the objects known as mechanically causing the apprehensions through which they are known. The chief objection to objective idealism is that it ignores the causal problem altogether.

Each position has also, however, its own merits. The strength of subjectivism lies in its candid recognition of what appears to be beyond dispute, supported as it is by the whole strength of physical and physiological science, namely, that sensations are due to the action of material bodies upon the sense organs and brain. Philosophy is peculiarly skilled in explaining away inconvenient facts, by giving to them, in what it calls critical interpretation, a metaphysical twist. But the affection of the sense organs by material bodies is, it

would seem, something that can not be thus conjured out of existence. The theory of knowledge must be prepared to interpret it in a manner that is not virtually in some concealed form its denial.

Objective idealism is equally strong in its main contention, namely, that mind knowing and consciousness of objects known are inseparable. Mind has no meaning for us save as consciousness, and there is no consciousness that is not consciousness of objects. A mind that is unconscious, as, for instance, in sleep, is inconceivable by us. It is then merely a name for an unknown, equal to x. Sleep is, for this reason, something of which objective idealists have never been able to give any reputable account. But not only is mind that which is conscious, it is also that which is not merely self-conscious. There is, as the objective idealists rightly maintain, no such thing as pure self-consciousness, a consciousness by a mind of itself and of nothing but itself. All consciousness, without exception, involves consciousness of objects. Consciousness of self and consciousness of the not-self are inseparable. This fact has important consequences, and is very rightly insisted upon by objective idealists. That, however, is a matter to which I shall return. And now for the general problem.

We may judge of man in two very different ways, from the point of view of his animal organism, and from the point of view of his inner life. Voltaire has remarked that "it would be very singular that all nature, all the planets, should obey eternal laws, and that there should be a little animal five feet high, who, in contempt of these laws, could act as he pleased, solely according to his caprice." Voltaire is here judging of man in terms of the conditions of his animal life. He is forgetting that this same animal of five feet can contain the stellar universe in thought within himself. Infinite space and infinite time can be ranged over by the human mind. Man's spiritual dignity dwarfs even the highest of his animal functions. Though finite in his mortal conditions, he is divinely infinite in his powers.

Were we not so thoroughly familiar with the unlimited power of thought, could we (to form for the moment a self-contradictory hypothesis) without ourselves possessing this capacity, be informed that beings on other planets are thus endowed, we should certainly be incredulous. It would seem too absurdly impossible that a creature five feet high and confined to one planet, should yet at the same time possess a something called mind or consciousness which can range over the whole of infinite space. That would surely be denounced as more unbelievable than any dogma ever propounded by the theologians, more impossible than the wildest and most superstitious belief of primitive man.

The power of thought is sufficiently wonderful in the animals,

enabling them as it does to have some apprehension of their environment, and so by variation of their reactions to attain satisfaction of their instinctive needs. But in man it no longer serves a merely practical purpose—that is, if we adopt, as it seems to me we must, the idealist interpretation of the function of human thought. In man thought is essentially speculative in its character, connecting him with the universe as a whole, and driving him by the compulsion of an inner need to rationalize and render intelligible to himself the nature of things.

It is this uniqueness of thought which seems to justify philosophy in laying so absolute a stress upon it, and in maintaining that it must largey contribute to the determining of our general philosophical attitude. By preoccupation with the question of knowledge, aided by the natural sciences, but not overweighted by them, we may hope to find some of the deeper clues that will lead to a more adequate solution of our philosophical problems.

It is this twofold aspect of our existence, as at once animal in its conditions and potentially universal in its powers of apprehension, that forces upon Kant the problem of reconciling phenomenalism with individualism. The finite self exists in and through space and time, not space and time in and through the finite self. It is conscious of a time that existed before its own existence and which will outlast it. It is conscious of itself as being limited down, as an animal existence, to a particular position in space, and as subject to all the limitations which such position involves. Experience also teaches —and this is likewise an essential element in Kant's doctrine—that our various sensations are due to the action of material bodies upon our sense organs and brain. But, on the other hand, Kant is no less emphatic in maintaining that the whole world in space and time rests upon complex conditions that are inextricably bound up with the determining factors of our transitory existence. The material world in space is in its apprehended form phenomenal. It is an appearance which exists only in and through consciousness. And yet consciousness only appears in connection with individuals that are conditioned by the limitations which spatial and temporal existence impose.

The usual interpretation of Kant is little better than a parody of his real teaching. It takes Kant's solution of the problem as consisting in the assumption of a self that by its creative agencies constructs out of given sensations the mechanical world in space and time. The world exists separately in the mind of each individual observer; it has no independent existence apart from these its individual embodiments. If that were Kant's position, it would be of comparatively little value, and would merely be a form of Berkeleianism. The chief problems of philosophy center in the self, in the

question as to the nature and possibility of spiritual existence. Certainly, if we may assume the existence of the self as a spiritual being capable by its activities of generating the world in space and time, we may be able to explain the apprehended universe. The legitimacy of such an assumption is, however, itself the chief point at issue. And that it is an illegitimate assumption was one of Kant's main contentions. It is illegitimate for two reasons. First, because to explain by reference to the activities of such a self is to explain by faculties, by the unknown. It is a cause that will explain anything and everything equally well or badly. This is an argument which Kant nowhere himself employs, but it is implied in a second argument which finds expression both in the *deduction of the categories* and in the *paralogisms*. The only self that we know is a conscious self. And since as conscious it can only exist in and through consciousness of objects, it can not precede such consciousness as its generating cause.

It is in another and very different manner that Kant maintains the dependence of phenomena upon consciousness. He makes a most valiant attempt to combine his phenomenalism with realism; and though most of the inconsistencies in his teaching are traceable to the almost insuperable difficulties to which any such attempt gives rise, it is also the source of much that is most suggestive in his thought. I shall try to indicate Kant's position on this point.

As I have already said, it is much easier to combine realism with subjectivism than with phenomenalism. Realism appears in a subjectivist form in Descartes, Locke, and Leibnitz; also in Helmholtz, Huxley, and Spencer. In all of those thinkers, everything outside the individual mind is real: appearance is purely individual in origin. Their position, therefore, is not strictly phenomenalism, but only subjectivism. Kant, on the other hand, maintains that the individual is himself known only as appearance, and can not therefore be the medium in and through which appearance exists. Though appearance exists only in and through consciousness, it is not due to any causes that can legitimately be described as individual.

But though Kant is insistent both upon his phenomenalism and upon his realism, he inclines, according to the exigencies of the argument and to the special difficulties which he happens in each context to have in view, now to the one and now to the other. "Inclines" is perhaps too mild a term. There may indeed be traced, running side by side through all his critical writings, two conflicting views as to the mode of existence possessed by the material world in space, as to the nature of mechanical causation, as to the constitution of inner sense, and as to the character of the transcendental unity of apperception. The usual and current interpretation of Kant, to

which I have just referred, takes only the one set of views, and ignores the others. It is in the perpetual oscillation between the two, and in the perpetual striving to reconcile them, that much of the value, and most of the present-day interest, of the "Critique" lies. To this cause is largely due its permanent, though illusive, power of suggestion.

Sensations, Kant holds, have a twofold origin, noumenal and mechanical. They are due in the first place to the action of things in themselves upon the noumenal conditions of the self, and also in the second place to the action of material bodies upon the sense-organs and brain. To take the latter first. Light reflected from objects, and acting on the retina, gives rise to sensations of color. For such causal interrelations there exists, Kant teaches, the same kind of empirical evidence as for the causal interacting of material bodies. Our sensational experiences are as truly events in time as are mechanical happenings in space. In this way, however, we can account only for the existence of our sensations and for the order in which they make their appearance in or to consciousness, not for our awareness of them. To state the point by means of an illustration. The impinging of one billiard ball upon another accounts causally for the motion which then appears in the second ball. But no one would dream of asserting that by itself it accounts for our consciousness of that second motion. We may contend that in an exactly similar manner, to the same extent, no more and no less, the action of an object upon the brain accounts only for the occurrence of a visual sensation as an event in the empirical time sequence. A sensation just as little as a motion can carry its own consciousness with it. To regard that as ever possible is ultimately to endow events in time with the capacity of apprehending objects in space. In dealing with causal connections in space and time we do not require to discuss the problem of knowledge proper, namely, how it is possible to have or acquire knowledge, whether of a motion in space or of a sensation in time. When we raise that further question we have to adopt a very different standpoint, and to take into account a much greater complexity of conditions.

I may indicate two of the difficulties which such a view involves. It is fair sailing in regard to the organic sensations, and to the sensations of the lower senses, including temperature sensations. Difficulties present themselves in regard to sensations of touch and motor sense, and especially in regard to sensations of color. Color is not perceived as an event caused by the external object which acts on the retina, but as its inherent and permanent quality. The treatment of this point would require a paper all to itself. Another difficulty is in regard to feelings and desires. Kant cuts the gordian

knot by viewing them as all mechanically conditioned. They fall within the empirical world, and are completely subject to its laws. But I proceed to my next main point.

We have no direct acquaintance with consciousness. We are aware only of contents apprehended, never of the process to which their apprehension is due. We may, of course, be aware of the steps which we take in order to place ourselves in a proper position or mental attitude for experiencing a content, but of the actual consciousness of the content we have no awareness. We have experience of pleasure, pain, desire, striving, and the like. These, however, would seem to be in all cases experiences of which we are aware, but not to be themselves describable as awareness. We seem to postulate the existence of that which we name consciousness or awareness from reflection upon the order and mode of happening of the various contents apprehended. It is inferred or postulated, not itself experienced. No analogy derivable from the known world is in the least degree adequate to express its mysterious character. The nearest analogy is space, and that is a comparison which does not help. Consciousness would seem to be an absolutely unique form of existence. Though we may determine certain of its conditions, and some of its chief effects, we can not specify its inherent nature.

My third point is that the connection established by Kant between time and inner sense is illegitimate and misleading. Time appears to be just as objective as space. It is just as necessary a component of natural phenomena. Motion is the fundamental thing in nature; it is more important than the matter which serves as its vehicle, and by its very nature it demands both time and space; it occurs in both equally. One reason why time is, by Kant and others, taken as less objective than space, and as standing in a closer relation to mind, is, of course, that many so-called mental experiences have no position in space but occur in time. A pleasure or a pain, an odor, a sound, may as effects be traced to mechanical processes in space, but in themselves they are without form and shape, and can not strictly be regarded as possessing spatial position. For this reason feelings and the sensations of the secondary qualities have been regarded as mental in character and as wholly opposite in nature to the physical. But such argument might prove even physical energy to be a mental existence.

To turn now to the other and more difficult aspect of the problem. What does the postulating of consciousness involve? What are the conditions upon which consciousness would seem to rest? Kant's answer to this question is given in the *subjective* and *objective deductions of the categories.* For the purposes of this paper we

need consider these deductions only in so far as they raise the question in regard to consciousness of time. Consciousness of time is involved in all our consciousness. Though highly complex, it is the minimum form in which our consciousness exists. It can not be explained as having developed from a more primitive and simpler form in which such temporal consciousness is not already contained. It is consciousness of a succession as a succession. Admittedly complex, it must have conditions equally complex. These Kant formulates as being synthetic processes whereby the past is held together with the present, being reproduced in image, and being recognized as representing experiences which have just elapsed. Ultimately this recognition involves some form of self-consciousness, implicit though not explicit. Kant therefore postulates as the indispensable conditions in and through which alone the minimum consciousness can be rendered possible, a large number of synthetic processes. These synthetic processes must take place and complete themselves before consciousness can exist at all. And as they thus precondition consciousness, they can not themselves be known to be conscious; and not being known to be conscious, they may not even be described as mental. We have, indeed, to conceive them on the analogy of our mental processes; but that may only be because of the limitation of our knowledge to the data of experience.

Further, we have no right to conceive them as the activities of a noumenal self. We know the self only as conscious, and the synthetic processes, being the generating conditions of consciousness, are also the generating conditions of the only self for which our experience can vouch. They are named "synthetic" because consciousness in its very nature would seem to involve the carrying over of content from one time to other times, and the construction of a more comprehensive total consciousness from the elements thus combined. Kant is here analyzing, in its simplest and most fundamental form, what William James has described in his "Principles of Psychology,"[2] as the telescoping of earlier mental states into the

[2] *Cf.* Vol. I., p. 339. "Each later thought, knowing and including thus the thoughts which went before, is the final receptacle—and appropriating them is the final owner—of all that they contain and own. Each thought is thus born an owner, and dies owned, transmitting whatever it realized as its self to its own later proprietor. As Kant says, it is as if elastic balls were to have not only motion, but knowledge of it, and a first ball were to transmit both its motion and its consciousness to a second, which took both up into *its* consciousness and passed them to a third, until the last ball held all that the other balls had held, and realized it as its own. It is this trick which the nascent thought has of immediately taking up the expiring thought and 'adopting' it, which is the foundation of the appropriation of most of the remoter constituents of the self. Who owns the last self owns the self before the last, for what possesses the possessor possesses the possessed."

successive experiences that include them. They telescope in a manner which can never befall the successive events in a causal series, and which is not explicable by any scheme of relations derivable from the physical sphere.

The point may be made clearer by inquiring how Kant conceives the material upon which the synthetic processes act. They are, he says, due to the affection by things in themselves of those factors in the noumenal conditions of the self which correspond to "sensibility." ("Outer sense" must not be identified with the bodily senses.) But just as he frequently speaks as if the synthetic processes were mental activities exercised by the self, so also he frequently uses language which implies that the manifold upon which these processes act is identical with the sensations of the special senses. But the sensations of the bodily senses, even if reducible to it, can at most form only part of it. The synthetic processes, interpreting the manifold in accordance with the fixed forms, space, time, and the categories, generate the spatial world within which objects are apprehended as acting upon one another, and also as causing through their action upon the sense-organs of the animal body sensations as events in time. Sensations, as mechanically caused, are thus on the same plane as other appearances. They rest upon the same complex generating conditions as the motions which produce them. And the material for all of them, and not merely for our sensations, must be supplied in the primary manifold.

Obviously, what Kant does is to apply to the interpretation of the noumenal conditions of our conscious experience a distinction derived by analogy from conscious experience itself—the distinction, namely, between our mental processes and the sensuous material with which they deal. The application of such a distinction may be inevitable in any attempt to explain human experience; but, as Kant has himself pointed out, it can very easily, unless carefully interpreted, prove a source of serious misunderstanding. Just as the synthetic processes which generate consciousness are not known to be themselves conscious, so also the manifold can not be identified with the sensations of the bodily senses. These last are events in time, and are effects not of noumenal but of mechanical causes.

Kant's conclusion is twofold: positive, to the effect that consciousness, for all that our analysis can prove to the contrary, may be merely a resultant, derivative from and dependent upon a complexity of conditions; and negative, to the effect that though these conditions may by analogy be described as consisting of synthetic processes acting upon a given material, they are in their real nature unknowable by us. Even their bare possibility we can not profess to

comprehend. We postulate them only because they would seem to be demanded as indispensable conditions of our *de facto* experience. They can be defined only in terms of their effects, not in their own non-experienced nature.

Kant obscures his position by the way in which he frequently speaks of the transcendental unity of apperception as the supreme condition of our experience. At times he even speaks as if it were the source of the synthetic processes. That can not, however, be regarded as his real teaching. Self-consciousness, and with it the unity of apperception, rests upon the same complexity of conditions as does outer experience, and may, therefore, be merely a product or resultant. It is, as he insists in the *paralogisms,* the emptiest of all our conceptions; and can afford no sufficient ground for asserting the self to be a spiritual and abiding personality. We can not by theoretical analysis of the facts of experience or of the nature of self-consciousness prove anything whatsoever in regard to the ultimate nature of the self.

Kant's phenomenalism thus involves an objectivist view of individual selves and of their interrelations. They fall within the single common world of space. Within this phenomenal world they stand in external mechanical relations to one another. They are apprehended as embodied, with known contents, sensations, feelings, and desires, composing their inner experience. There is, from this point of view, no problem of knowledge. On this plane we have to deal only with events known, not with any process of apprehension. Even the inner components of the empirical self are not processes of apprehension, but apprehended existences. It is only when we make a regress beyond the phenomenal as such to the conditions which render it possible, that the problem of knowledge arises at all. And with that regress we are brought to the real crux of the whole question—the reconciliation of such phenomenalism with the conditions of our self-consciousness. For we have then to take into account the fundamental fact that each self is not only a minute existence within the phenomenal world, but also in its powers of apprehension coequal with it. The self known is external to the objects known. The self that knows is conscious of itself as comprehending within the field of its consciousness the wider universe in infinite space.

Such considerations would, at first sight, seem to force us to modify our phenomenalist standpoint in the direction of subjectivism. For in what other manner can we hope to unite the two aspects of the self, the known conditions of its finite existence, and the consciousness through which it correlates with the universe as a whole?

In the one aspect it is a part of appearance; in the other it connects with that which makes appearance possible at all.

Quite frequently it is the subjectivist solution which Kant seems to adopt, but he also suggests one that is more in harmony with his phenomenalist tendencies. He would then seem to distinguish between the grounds and conditions of phenomenal existence and the special determining causes of individual consciousness. Transcendental conditions generate consciousness of the relatively permanent and objective world in space and time; empirical conditions within this space and time world determine the sensuous modes through which special portions of this infinite and uniform world appear diversely to different individuals.

But such a solution is too crude to be acceptable. Consciousness of the objective world in space and time does not exist complete with one portion of it more specifically determined in terms of actual sense perceptions. Rather the consciousness of the single world in space and time is gradually developed through and out of sense-experience of limited portions of it. Kant leaves undiscussed all the obvious objections to which his phenomenalism lies open. He does not state in any adequate manner how from the phenomenalist standpoint he would regard the world described in mechanical terms by science as related to the world of ordinary sense experience, nor how different individual consciousnesses are related to one another. The very fact, however, that such problems are inevitably suggested by his critical inquiries is the best possible proof of their permanent value. They could never have occurred in any such form to his predecessors.

Bergson is one of the many who have attacked these problems in the light of distinctions first drawn by Kant. And in so doing he reformulates them in a manner which, though in many respects unsatisfactory, and which perhaps is not ultimately tenable, yet places the issues in a new and suggestive light. He sets aside the question of the genesis of consciousness. He assumes it as given. His starting-point is the world of material bodies in space. His problem is not to account for consciousness of it, but to explain why we know it in a form relative to our individual position and practical needs. It is the very nature of consciousness to correlate with reality as a whole, and to reveal it as it really exists. By right it is complete knowledge of true independent reality; in actual fact it is limited in extent, permeated with illusion, and largely personal. The problem is not, therefore, one of genesis, but of the limitation of the already existent—not how a self that is embodied and works under animal conditions is capable of attaining to a consciousness

of the universe within which it falls, but how mind, which is inalienably universal, can be limited by animal conditions. The change is, indeed, one of orientation rather than of problem, for consciousness of time, and recognition, *i. e.*, memory still remain central issues. Consciousness is "a force essentially free and essentially memory, a force whose very character is to pile up the past on the past, like a rolling snowball, and at every instant of duration to organize with this past something new which is a real creation."[3]

This position, when thus abstractly and baldly stated, may well seem to embody a most unlikely and even repellent thesis. Bergson renders it, however, both interesting and illuminating by the suggestiveness with which he works it out in honest detail. Common to him and to Kant remains the contention that an adequate theory of knowledge must reconcile realism and phenomenalism with one another, and both with the individualistic requirements of self-consciousness. And I should especially insist, considering the recent reemergence of realistic theories, upon phenomenalism as a fundamental characteristic of our experience, calling for the most ample recognition. Only so can we formulate a position which is capable of allowing both for human knowledge and for human ignorance, both for known facts and for unknown possibilities. And only so, as it seems to me, can an idealist philosophy escape the suicidal admission of the unlimited validity of the naturalistic position.

But Bergson modifies Kant's problems in still another direction; and by that restatement is enabled to carry their discussion several steps further. As above mentioned, Kant does not explain in what relation the mechanical world of natural science stands to the world of ordinary sense experience. The key to this question, or at least a point of view from which it can be profitably investigated, is supplied by biological science,[4] and though developed by many writers, has received its most convincing statement in Bergson's "Matière et Mémoire." Our sense perceptions are permeated through and through, from end to end, with illusion. Objects are seen as dwindling in size, as changing in form and color, as they pass into the distance. The parallel sides of a street are seen to converge as they recede. These illusions justify themselves by their practical usefulness, since they enable us to compress a wide extent of landscape into a single visual field, to determine distance, etc. But they likewise establish the unreal fictitious nature, the mental subjective

[3] I quote from the excellent résumé of his views which Bergson has given in his recent article in the *Hibbert Journal*, October, 1911, Vol. X., p. 37.

[4] It was anticipated by Malebranche. It holds a central position in his delightful and most unfortunately neglected philosophy. *Cf. British Journal of Psychology*, Vol. I., part 3, p. 191 ff.

character of the world perceived. The extent to which illusion thus permeates our sense experiences does not, however, become evident until we compare the knowledge which they yield with the conclusions of physical science. To define by an example: to sense perception a solid cannon ball appears to be a cold, black, continuous mass of quiescent matter. According to science it consists of millions of discrete particles which are neither cold nor black, and which are in constant motion. These particles by their movements occupy the volume of the sphere, much as a small army may occupy a huge extent of country, not by bulk but by mobility. To sense perception the ball thus appears as being exactly what it is not, and not at all as what it is. Though we can take it in our hands and gaze upon it with our eyes, we can not thereby discover its real nature. When we look at the ball, we are unable to see what actually is there, and instead we see something that is not there at all. The same holds of every one of our sense perceptions. They do not represent, but misrepresent, the true nature of the real. Not through sense experience, but only through scientific research, is genuine reality ever attained. The purpose of sense experience is not knowledge, but power. Its *raison d'être* is to yield, in the most convenient form possible, such apprehension of the observer's environment as will render adaptation and practical control possible. And this convenient form in which external objects are apprehended may be, and generally is, entirely false, when tested by a theoretical standard. The deceptions (if we may so name them) of sense experience justify themselves by their practical usefulness, as well as by their esthetic value. And in spite of their illusoriness they yield data sufficient to render possible of achievement the adventurous task undertaken by the scientist, namely, that of discovering from them their actual generating conditions.

The difference between the sensible and the mechanical is due in part, Bergson teaches, to a difference of *tempo* in the two series. "The essence of life seems to be to secure that matter, by a process necessarily very slow and difficult, should store up energy ready for life afterwards to expend this energy suddenly in free movements."[5] Consciousness is similarly constituted. "In an interval which for it is infinitely short, and which constitutes one of our 'instants,' it seizes under an indivisible form millions and billions of events that succeed each other in inert matter. . . . It is this immense history that I seize all at once under the pictorial form of a very brief sensation of light. And we could say just the same of all our other sensations. Sensation, which is the point at which consciousness touches

[5] *Loc. cit.*, p. 35.

matter, is, then, the condensation, in the duration peculiar to this consciousness, of a history which in itself—in the world of matter—is something infinitely diluted, and which occupies enormous periods of what might be called the duration of things."[6]

So far Bergson is only reinforcing the general teaching of natural science. But he likewise employs this pragmatic point of view in explanation of those categories of the understanding which Kant regarded as an ultimate and not further explicable endowment of the human mind. They too have their origin in our practical needs. Though the primary conscious purpose of the scientist is the gaining of knowledge, the modes in which he seeks to satisfy this endeavor are still influenced by non-theoretical conditions. The direct and immediate outcome of the sciences is, consequently, not knowledge, but power. Like sense experience, they deal only with appearances, though certainly with appearances that may legitimately be regarded as nearer to the independently real. For through knowledge of them man is enabled to transform what would otherwise be a fixed environment, tyrannically dictating the general principles of his life, into one that is more in harmony with his human and spiritual needs.

Problems, closed for Kant, thus open upon new perspectives; and become possible of further development by novel methods on fresh lines. If the mechanical categories are the outcome of practical needs, and are therefore systematic illusions justified by their fruits; and consequently, as we may further conclude, are only partial in their distortion of the real, it may be possible that scrutiny as careful and painstaking as that which has been expended upon the appearances of sense, may find in certain of the elements and contours of our scientific results data sufficient to enable the mind to penetrate even into the hidden mysteries of the absolutely real. For this, ultimately, is Bergson's fundamental divergence from Kant. He is no less emphatic upon the merely phenomenal character of the mechanical world in space. But he cherishes hope, and supplies a wealth of detailed argument in support of the assertion, that by empirical circumstantial reasoning, based upon the fundamental characteristics of natural existence and of human life, we may penetrate to the noumenal sphere. The limits of sense experience have been transcended in the construction of science. Thanks to these successes, and to the closer contact with reality which is thereby acquired, the achievements of the sciences may be accompanied by that less assured, but even more valuable insight which is only to be won by adventurous journeying upon the perilous paths of metaphysical speculation. Such insight, anticipatory and almost prophetic, ahead

[6] *Loc. cit.*, pp. 36–37.

of the sciences but still in touch with them, has been the very breath and spirit of human endeavor in the past. It may well continue to perform the same precarious but indispensable function in the future. In opposition to a purely naturalistic interpretation of the real, it can always draw afresh upon the comparatively untapped resources of our specifically human and essentially spiritual life.

In conclusion, I may summarize and define the main points of this paper by stating them in their relation and opposition to the standpoint which Professor Dewey has so forcibly developed in his recent articles.[7] Firstly, the really critical issue in the present-day problem of knowledge would seem, as Professor Dewey has argued, to be the question whether awareness or consciousness may legitimately be regarded as an *event,* and therefore as having a place in the single continuous causal series that constitutes the objectively real. The thesis which I have tried to maintain is that this may be true of sensations, but not of the knowing process, of the awareness or consciousness as such. Consciousness can not be described as an event in any sense which would set it as an integral element into the single causal time and space series.

Secondly, Professor Dewey denies that knowing is a "unique and non-natural type of relation." I have tried to argue for its uniqueness. "Non-natural" is a hard term; but taking it as meant, *i. e.,* as signifying anything and everything that falls outside the single continuous causal series investigated by the natural sciences, I have sought to defend the more traditional view, that the knowing process may be so described.

Thirdly, it has been argued above, that we may judge of man either from the point of view of his animal organism or from that of his inner life. Professor Dewey would seem to maintain that so far as regards the problem of knowledge, or at least of sense perception, the former alone is required.[8] The thesis of this paper is the directly counter position. The problem of perception is for philosophy uniquely important, and can not be solved by any conceivable advance either of physiology or of biology upon their present lines. With a physiology or a biology fundamentally different from those actually existent we are not, of course, concerned; in regard to such no prophecy, positive or negative, can be made.

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[7] This JOURNAL, Vol. VIII., pp. 393 and 496.

[8] *Cf. loc. cit.,* pp. 400 and 552.

DISCUSSION

BERGSON'S ANTI-INTELLECTUALISM

PROFESSOR PERRY'S "Notes on the Philosophy of Henri Bergson"[1] is a trenchant criticism which undertakes to maintain two propositions: (1) "Bergson's indictment of the intellectual method rests on a misunderstanding of that method" (p. 674). (2) Bergson's anti-intellectualism is "involved in a more serious error" in that it "puts forth a claim" to immediate knowledge which is "unfounded" (p. 678).

I confess I am not able to make out the particular misunderstanding which Professor Perry means to attribute to Bergson under the first point of his criticism. From the statements (p. 675) it is not clear to me whether this misunderstanding relates to the nature and function of the concept, or whether it relates to the consistent procedure of the anti-intellectualist.

I do not think that Professor Perry's statement (p. 675) that "Bergson is not clear as to whether a concept is to be distinguished by its function or its content" is quite to the point. It seems to me that Bergson is *altogether* clear in that matter. Bergson clearly teaches that, since the function of the intellect is to direct our action upon reality instead of revealing the *nature* of reality, concepts are the special instruments or tools by means of which our actions are made effective as they insert themselves into the real world. This essentially instrumental function of our concepts determines also their *content* or structure; the two, function and content, correspond. Our concepts are plans of action, and not mediate ways of penetrating or disclosing the nature of reality. Conceptual thinking is not "a mode of access to immediacy." Hence, the "strange procedure" which Professor Perry points out (p. 675), namely, "to prove that intellect is essentially instrumental and then to attack it in behalf of that very end for which it is useful," can not rightly be imputed to Bergson's pragmatism.

I can not see that Professor Perry has brought forth anything under the second point of his criticism which tends to disprove Bergson's anti-intellectualism. All that Professor Perry says (pp. 676–7) about spacial continuity, etc., Bergson could accept. In the case of space, which is an intellectual construction, the formula and added statements which Professor Perry suggests, can mean, nay, they describe this kind of continuity; for this continuity consists of just those elements and connections in which the intellect is at home;

[1] This JOURNAL, Vol. VIII., page 673.

this quantitative multiplicity being made up of elements which are homogeneous, static, and which merely touch, but do not penetrate, each other. Such a system or order can be conceived and described in the manner Professor Perry suggests (p. 677).

But how about the other continuities, those of time and motion? It is the essence of Bergson's contention, that when the intellect deals with these continuities, it can do so only as it frames concepts which leave out of their content and their legitimate function just that which is distinctive of time and that which is the essence of motion. The intellect thinks time only as it spacializes it, and motion only as it reduces it to a succession of immobile states. Now, under this third point of his critique, I can not see that Professor Perry has broken the force of this contention.

In the next criticism, the substance of Professor Perry's reasoning against Bergson's position, "that to conceive time is to spacialize it," is as follows: "Bergson is misled by supposing that because time is conceived as orderly, it is therefore nothing but order. Bare logical order is static and can never express time. But it is an utterly different matter to regard time, like space and number, as a case of order, having the specific time quale over and above the properties of order. Position, interval, before and after, are then to be taken in the temporal sense; and the terms of the series are not to be taken as bare logical terms, still less as spacial points, but as instants possessing a unique time-character of their own" (p. 678).

Now, this reasoning, I think, begs the question. For, to regard time as a "case of order," and at the same time to give it the "*specific quale*" of the sort proposed, is as impossible a logical undertaking as would be the attempt to place something in a certain genus, and at the same time give it a mark or quale which takes it *out* of that genus altogether, and puts it within some other genus. The "time quale," the "unique time-character" which Professor Perry thinks constitutes only a specific differentia in the case he instances, really constitutes a generic difference. What we have in this instance is not a species within a genus, but two genera between which, Bergson contends, there is a radical difference. I do not think Professor Perry, in this part of his critique, has successfully met Bergson's contention that the concepts of time and motion which our intellect forms do not give us knowledge of these realities; they do not give us "access to that immediacy" in which real duration and motion are given us.

The second main criticism which Professor Perry makes upon Bergson's anti-intellectualism is that Bergson "puts forth a claim which is unfounded—the claim, namely, to the immediate apprehension of a fused and inarticulate unity" (p. 678).

The substance of the critic's reply to Bergson is that what Bergson puts forth as matter of immediate knowledge is not really knowledge at all. Thus, Bergson says:[2] "The more we succeed in making ourselves conscious of our progress in pure duration, the more we feel the different parts of our being enter into each other, and our whole personality concentrate itself in a point." To this Professor Perry replies (p. 679): "What Bergson is here describing is, I am convinced, the disappearance of cognition into an experience which is not an experience of anything at all. . . . My experience of life has dissolved; but nothing follows concerning the nature of life. I have simply closed my eyes to it. I have blurred and blotted out my knowledge of life."

Now, after reading all the passages in Bergson's writings which relate to intuitive knowledge, I can not convince *my*self that Bergson is not describing a truly cognitive experience, instead of giving us knowledge at the vanishing-point. My own introspection verifies Bergson's statements. I am quite certain that I have an experience *of* something, namely, of real time in its flow and interpenetration of moments. I have, it seems to me, an immediate knowledge of just that qualitative multiplicity of psychical states which Bergson has clearly described and accurately distinguished from the other kind of multiplicity, of which we have knowledge only through the mediation of conceptual thinking.

I am unable to see on what grounds Professor Perry is "convinced" of the erroneousness of Bergson's description, other than his own introspection, and possibly that of other individuals whose introspection yields the same results. It seems to me that the utmost Bergson's critic makes out against Bergson's position is that Bergson's claim to an immediate apprehension of the sort described is not borne out by the introspective analysis of at least *one* person, and possibly not borne out by the introspection of other individuals. But that the claim to such non-conceptual knowledge is an unfounded one, the critic, in my opinion, has not shown.

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REVIEWS AND ABSTRACTS OF LITERATURE

Lectures on the Experimental Psychology of the Thought Processes. EDWARD BRADFORD TITCHENER. New York: The Macmillan Co. 1909. Pp. ix + 318.

This book consists of five lectures delivered at the University of Illinois; the lectures proper fill about two thirds of the volume, the rest being

[2] "Creative Evolution," page 201.

given to notes. Together they form a needed analysis of the contributions to the experimental investigation of thought by Marbe, Watt, Ach, Messer, Bühler, etc., besides giving the author's estimate of their value, his own present views concerning the problems raised, and his suggestions for fruitful directions of future research. It is doubly welcome because of the author's happy gifts for such a task.

At the very outset it is shown that individual differences in mental make-up must play an important part in the psychology of thought, that, indeed, "a frank acceptance of the teachings of differential psychology will go far to allay some of the perennial controversies of the text-books" (p. 7). What part they may play Titchener indicates by laying bare the workings of his own mind. His mind is markedly of the imaginal—the mixed imaginal—sort. Sometimes one kind of imagery is uppermost, sometimes another. In reading, for instance, his ultimate standard of clarity and consistency in an author is schematically visual—the visual pattern not merely an accompaniment of other processes, but one that "is or equals my gross understanding of the matter in hand" (p. 13). For him either visual or kinesthetic imagery, quite apart from verbal, may be the vehicles of logical meaning—may mean of themselves—and not act merely as guide-posts to something beyond.

This discussion leads to one concerning the possibility of abstract or general ideas. It is pointed out that in the traditional English teaching there has been here a confusion between logic and psychology, for the abstract is not the conscious process, but the logical meaning. Titchener believes, indeed, that a particular definite image might carry abstract meaning and a vague image a particular meaning, since *attentional* clearness is the essential element in the meaningfulness of an image, and not intrinsic definiteness.

The argument thus far points to psychological sensationalism; the book is, indeed, a defense of sensationalism as an adequate instrument of interpretation in dealing with thought processes as well as with others. The author sharply separates modern sensationalism, however, from that of the associationists. They dealt with meanings, thought-tokens, bits of knowledge, with *sensations of* and not with *sensations;* the sensations and ideas of modern psychology are, on the contrary, *Erlebnisse,* data of immediate experience. Meanings, furthermore, are stable and may be ordered mosaic wise or chain-wise, but experience is continuously flowing; a psychology whose elements are sensations is, therefore, a *process* psychology, quite innocent of mosaic and concatenation. Whether referring to "substantive" or "transitive" meanings, the psychological process is always of itself transitory. Nor did the associationists help matters by invoking mental chemistry, for "we do not expect, if two sensations are put together, to obtain a simple concurrence of their two qualities" (p. 32). Finally, modern sensationalism is merely an heuristic principle and not a preconceived theory; to us the sensation is an analytic element, says Titchener, abstracted from complex mental experiences, not a synthetic or generative element—not a "first term" in the construction of mind.

The upshot of this first lecture is, then, that the image may adequately *equal* meaning and that, if the task of modern psychology is analysis of experience into its existential elements, sensation (with affection) is doubtless an adequate tool.

The second lecture deals with "'reference to object' as the criterion of mind." In the various "reference to object" theories psychological fact has been cast into logical form; the separation of the conscious experience into act and content, or idea and object, leads to overarticulation and to neglect of analysis, because logical construction and not introspective analysis is here in control of classification and analysis. To extricate psychology from this Titchener invokes the process character of mind: the way a process runs its course (act) makes it sensing, feeling, or thinking, whereas the quality thus in passage (content) makes it tone or pleasure. Furthermore, the pointing relation of the "transitive objectivity" theories (Stout, Witasek) does not obtain in feelings, organic sensations, etc., whereas we do find it in the physical world: the transitive reference is not, therefore, existentially speaking, a unique, characteristic criterion of mind. The concept of objective reference, in whatever form, is thus an irrelevant injection of logic into psychology, warping it away from the direct existential analysis of conscious phenomena where we do, in fact, find objectless mental processes. This exclusion of the "logical" objective-reference postulate from the existential science of psychology frees us from a frequently urged difficulty—that two ideas or images under the form of existence can not make a meaning (because meaning is reference to object and this can be known but not imaged), since, in an existential psychology, the final appeal is to introspection; and introspection tells us, thinks Titchener, that under certain circumstances two ideas do make a meaning.

The third lecture takes up the actual work of the experimental investigators. Their attempt, the details of which can not here be considered, was, essentially, to isolate under experimental conditions some thought process and to require from the subjects careful introspection on its behavior. These introspective data Titchener thinks very valuable. As to the relative merits of the individual investigators, he believes that Marbe and Binet made a good beginning, that Ach and Watt followed logically with respective specializations of the problems involved, that Messer, disregarding the good example of Ach and Watt, tried too much, and that Bühler, in devoting himself to "a revolutionary attempt to rewrite the psychology of thought from the beginning" (p. 98), forsakes rigid experiment and is methodologically retrogressive.

Emerging from the work of these experimenters there appears, as perhaps most characteristic, the *Bewusstseinslage*—"an almost untranslatable term, meaning something like posture or attitude of consciousness" (p. 100), but identifiable, at least, with what Angell had previously phrased as "a tingling sense of irradiating meaning," and Stout as the experience of "imageless thought." Some such attitudes are doubt, difficulty, effort, hesitation, and the opposite experiences of certainty, assent,

conviction, etc. Disregarding differences in usage, classification, and theory of the various investigators, we have here an experience that apparently defies analysis into sensations and images, into, in fine, any terms of content whatever; they are essentially obscure and intangible, "imageless presentations" with, however, perfectly "unequivocal reference," the mind being thrown into a certain set or adjustment, the significance of which may be attentionally clear but empty of imaginal furnishings There may, of course, be transitional forms (Titchener, indeed, regards the present pressing problem to be the tracing of the development of these attitudes, within the individual mind, from their original imaginal matrix),[1] but the full-blown attitude is apparently contentless. Does, then, consciousness really harbor such things? If so, are they mental *elements?* If they are not, what are they? The challenge to sensationalism is unequivocal and unavoidable.

It is but a short step to pass, in the fourth lecture, from the *Bewusstseinslage* of meaning to thought itself. Do the experimental results bear out the theory of imageless thought? Marbe, unsuccessful in his search for *psychological* judgment processes, invokes, as the guide in judgment, an unconscious dispositional purpose. Watt proposes, as his psychological criterion of judgment, the *Aufgabe* (problem or task) given, in his experiments, in the instructions of the experimenter and definable, more generally, as the underlying *intention* in control of an activity. This it is that distinguishes a judgment from a mere sequence of experiences, and, although as explicit conscious experience it may be past and gone, it persists as an appreciable influence—as an automatic set, attitude, or adjustment. This determining "problem" is also clear to Messer and Ach. As the reviewer understands it, we are here again in the presence of a *Bewusstseinslage*—a Bewusstseinslage of cognition—that may function effectively, but exhibit no apparent imaginal content. Bühler finds, indeed, the most important factors in the thinking of his subjects to be something without sensible content, referred to as awareness, or knowledge, or "the consciousness that" or, most frequently, thoughts. These are Bühler's *thought elements,* the ultimate units of thought experience. Titchener, it may be remarked, objects to this last result on the specific ground that Bühler's introspective data show what in the sphere of sensation would be called the stimulus error—the observer does not describe his thought, but, instead, what it is about, describes not the conscious process as such, but formulates "the reference of consciousness to things" (p. 147)—a criticism applying also to Binet and Woodworth.

But aside from this and aside from the unsatisfactory state of affairs that exists, as the author shows, as to a proper psychological criterion of judgment, the investigators agree that there is present in the thought process an effectively determining factor, yielding, however, no explicit conscious (sensory or imaginal) content.

The challenge to sensationalism is wholesome and should be frankly and gladly met, thinks Titchener. In the last lecture he does what he

[1] See, on this, Helen Maude Clarke, "Conscious Attitudes," *American Journal of Psychology,* 1911, Vol. XXII., pp. 214–249.

can, at the present stage of investigation, to meet it. The gain from previous work is clear: conscious states like doubt, hesitation, certainty, etc.—attitudes—have been isolated and the fact of determination, *Aufgabe,* has been recognized as a principle of explanation in strict laboratory procedure. The discovery of *Aufgabe* "has made it impossible for any future psychologist to write a psychology of thought in the language of content alone. I believe, indeed, that the principle of determination, taken together with what I may call a genetic sensationalism, furnishes a trustworthy guide for further experimental study of the thought-processes; and I think that the work immediately before us is, under this guidance, to bring the processes, little bit by bit, under rigorous experimental control" (pp. 163–164). The question is not wholly, therefore, Can the sensationalists find in the alleged imageless experiences *always* a sensory content? but rather, Isn't content more pervasively present than the imageless-thought disciples suppose, and may not such things as Watt's *Aufgabe* and Ach's *determinierende Tendenzen* be, genetically, developments from processes essentially imaginal? The further question, it is true, also awaits: If, originally full of content, these experiences are now empty of it, how should a sensationalistic psychology now classify them?

Three regulative maxims are first proposed that should direct inquiry into these matters. (1) Psychology must steer circumspectly between logic, on the one hand, and common sense, on the other. (2) Psychology, in such problems as thought, must supplement the analytic treatment with the genetic, racial as well as individual—an analysis must be repeated at the various formative levels of consciousness. Furthermore, we shall take as a mental element "any process that proves to be irreducible, unanalyzable, throughout the whole course of individual experience" (p. 170). If an attitude can be traced back in the individual to an imaginal source, it is not a new kind of conscious element. (3) "Consciousness may be guided and controlled by extra-conscious, physiological factors—by cortical sets and dispositions" (p. 173)—a determination that may lead, too, to novel conscious connections.

Titchener then attacks the problems directly. Is it nonsense to call a psychological fact or occurrence the meaning of another psychological fact or occurrence? Can two ideas be both idea and its meaning? Yes, under certain circumstances, as already stated in the second lecture. Psychologically, "meaning—so far as it finds representation in consciousness at all—is always context," and context is "simply the mental process or complex of mental processes which accrues to the original idea through the situation in which the organism finds itself" (p. 175). Originally meaning is kinesthesis—the sensations involved in a characteristic bodily attitude "are psychologically the meaning of that process. . . . Afterwards, when differentiation has taken place, context may be mainly a matter of sensations of the special senses, or of images, or of kinesthetic and other organic sensations, as the situation demands" (p. 176). Kinesthesis and verbal imagery are especially important, since words themselves were originally motor attitudes, kinesthetic contexts.

But, further, meaning is probably carried in purely physiological terms; the *Aufgabe* must be there, but that need not either come to consciousness. As for imageless thoughts, Titchener's own introspection does not show him, in his search for *Bewusstseinslagen,* forms of experience different in kind from such kinesthetic backgrounds as his careful introspection often discovers in the respective attitudes involved in working off, for instance, on a typewriter, a lecture or the daily batch of professional correspondence. But the contention is not at all that attitudes will always, in their developed state, exhibit content, but that, since genetically they probably spring from sensory experiences, they are not distinct conscious *elements.* While still recognizable as *conscious* attitudes, they either show some remnant of imagery or, since they may be, in their development towards physiological dispositions, on the brink of unconsciousness, exhibit none discoverable. In much of this Titchener is, of course, simply expressing tentative belief and not experiment-born conviction, but the main contention, that sensationalism has still a well-considered word or two to say, stands clear. In "feelings of relation," too, Titchener finds content; but here, also, habit operates towards unconscious mechanization, towards physiological disposition. As to judgment, we do not yet know what it psychologically *is;* but the task of psychology is to work out the particular problems set by investigations already made and compare results with the teachings of logic, in order to find out what kinds of consciousness correspond with logical definitions of judgment.

Finally, we are not yet driven to psychological revolution. "My task has been to persuade you that there is no need, as things are, to swell the number of mental elements; that the psychology of thought, so far as we have it, may be interpreted from the sensationalistic standpoint, and so far as we still await it, may be approached by sensationalistic methods" (p. 194).

Titchener's personal answer to the challenge of the exponents of imageless thought is contained, in gist, in the following statement, referring, specifically, to "feelings of relation": "I must declare . . . that I can bear witness both to kinesthesis and to cortical set, but that between these extremes I find nothing at all" (p. 188). That is, in such things as the *Bewusstseinslage,* as the *Aufgabe,* there is either discoverable content (sensational, imaginal) or there is unconsciousness, mechanization, physiological disposition, cortical set. It seems to the reviewer that the "cortical set" is an interpretation of the "nothing at all"; that is, introspection may discover content, but when it finds "nothing at all," it takes the matter to lie outside the conscious field and refers it then to cortical set. Others, however, prefer to keep these *Bewusstseinslagen,* etc., *in* consciousness and to call them "imageless." Introspection may, of course, give you "imagelessness"; it can not give you cortical set. It might be a question, therefore, whether those who prefer to retain attitudes, no matter how contentless, within consciousness, are not adhering the more closely to the introspective ideal. The reply of sensationalism to this is, of course, obvious: when any *attitude* reveals no sen-

sational or imaginal content, one is not directly aware of it at all but infers its presence (as unconscious or physiological set) by its results in (introspective) consciousness; it can not, therefore, be a part of consciousness. But the rebuttal is equally obvious: first, some observers do confess to awareness for which subsequent reflection persistently fails to unmask imaginal content. Secondly, any one's introspection shows that one may be, at least momentarily, naïvely aware of some attitude, like doubt, with, at the time, no awareness whatever of sensations or images; it is only by the subsequent reflective analysis of introspection that the attitude, like a dissolving magic lantern view, may fade away and be replaced by an array of sensations. Now by what license can the first act of introspective awareness (that of doubt) be identified with the second (that of sensations)? Surely, if introspection is the arbiter, as the sensationalists would have it, to say that the first *is* the second is to forsake introspection and invoke logical construction.

But, although even the introspective criterion does not appear to give the honors wholly to the sensationalists, the reviewer considers the difficulty between them and the exponents of imageless thought as one that neither experiment nor introspection can settle. It is a matter of just that naughty logical construction which those to whom it is axiomatic that introspection is the final arbiter intrench themselves against. Shall the term consciousness be limited to introspectable content, everything else being cortical set, or shall we leave physiology alone here and affirm that the contentless attitudes and *Aufgaben* are simply forms of consciousness on which the additional reflective process always involved in introspection is not possible? To this question the strictly introspective dispute as to whether one may or may not be directly aware of attitudes empty of discoverable content is, of course, not germane. The dilemma appears clear: either we must reserve the term "conscious" for the gifts of introspection, in which case we have a psychology limited to the field of attainable reflection, all else being extra-conscious—physiological, if you will—or we must maintain that the field of real conscious "stuff" lies underneath and around and about the field of introspection—including, therefore, "mechanized" *Bewusstseinslagen* and *Aufgaben*—the data offered by introspection being simply the possible additional reflections that we may make on a part of it. The attitude in which no content is discoverable is merely conscious process successfully resisting reflection. This is, of course, quite aside from the question of whether it is a distinct kind of conscious *element,* for even if it be true that a process traceable back to a stage involving imaginal content can not be a distinct element, does the fact that in its development from this stage it gradually loses such content mean anything more than that it no longer presents introspectable attributes? Excluding it as a novel *element,* must we also throw it out of *consciousness* altogether? Is it logical to call it a *conscious* attitude so long as it is embedded in an imaginal matrix and then make it a *physiological process* when the imagery has forsaken it? Nor is all this a mere question of naming, of

classification; it is a question of the definition of consciousness, one's answer to which sets the *Aufgabe* that controls even the details of laboratory procedure.

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Phases of Evolution and Heredity. DAVID BERRY HART. London: Rebman Limited. 1910. Pp. xi + 259.

The Darwin-Wallace theory falls short in two respects. (1) It does not show where the power of variation in the individual lies. (2) No adequate explanation of the inheritance of variation is offered. Circumcision, practised generation after generation, plainly demonstrates that artificially produced variations in the "soma" of individuals are not transmitted to subsequent generations. Weismann made an advance on Darwinism when he asserted that the power of variation lies in the primitive germ-cells of the sexual glands, but he did not explain adequately the exact nature of the process of transmission. Mendel's experiments in artificial cross-fertilization between tall pea-plants and a dwarf variety showed that the first generation consisted uniformly of tall pea-plants. When these were allowed to self-fertilize, the result was talls and dwarfs in the ratio 3:1. The dwarfs thereafter bred true, but the "talls gave, on self-fertilization, one third which bred true to tallness and two thirds which, as impure talls, gave somatic talls, and also dwarfs breeding true again in the ratio 3:1." From this Mendelians infer that dominance and recessiveness of certain characteristics, called unit-characters, are accounted for by the theory of gametic segregation and combination according to the law of chance. Dr. Hart believes that the principal defect in the Mendelian theory is to be found in the fact that it states the ratio of transmission in relation to the "soma" of the plant only. An organism (plant or animal) consists of the adult individual part or "soma" and the propagative part. The latter is the determining factor in future reproduction. The author holds that the zygotes in each crossing consist of a propagative and a somatic part. The Mendelian ratio obtains in the propagative part only.

In the fifth chapter, the author discusses what he terms an intrinsic theory of variation and transmission. He sums it up[1] as follows:

> The primitive germ-cells which give rise to the gametes are derived from an early division of the zygote, and travel through the organism to the sexual gland without undergoing any mitosis, that is to say, without variation in their structure. In the sexual gland they undergo mitosis, which means variation in the determinants of the unit-characters, according to the law of probability. . . . When the gametes unite, we get half of the varied chromosomes thrown off, and then when the zygote with its proper number of chromosomes is formed, we get the phenomenon of Mendelism, by which the unit-characters are distributed in the zygote, again according to the law of probability; so that by all this we get in subsequent generations organs following the curve of probability in their anatomical condition and function.

Dr. Hart declares that this theory "puts variation by environment quite out of question." This conclusion, however, does not necessarily

[1] P. 94 ff.

stand. It remains to be shown that variations which environment—not artificial mutilation—produces on many succeeding generations do not affect the cells that are set apart for propagation as well as those that constitute the "soma." Tallness and shortness, which are continually transmitted, are themselves often the result of environment. The propagative cells do not exist independent of and apart from the "soma." In short, it seems best to wait until more evidence is in before accepting a theory which in part falls back on chance, and for the rest posits two independent causal series, the "soma" which is manifestly influenced by the environment, and the cells set apart for propagation, which act independent of environment.

The book, as a whole, is not a unit, but discusses widely divergent phases of evolution and heredity. One chapter is devoted to the life of Mendel. Other subjects taken up are: "Heredity in Disease," "The Evolution of the Honey-Bee," "The Handicap of Sex," "Evolution and Religion." The author has written a stimulating book. Most of the chapter captions might well serve as titles of books.

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THE UNIVERSITY OF NANKING.

JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. September, 1911. *The Platonic Distinction between "True" and "False" Pleasures and Pains* (pp. 471–497): HAROLD H. JOACHIM.—It is maintained that the question raised by Plato regarding the reality of pleasure and pain is of great importance. For common opinion the question of the truth or falsity of pleasure and pain does not arise, because for them there is no distinction of "the that" from "the what," thus marking them off from "knowing" and "willing." Regarding the distinction of the "that" and the "what" in "knowing" and "willing" as untenable, "feeling" is put in the same class, and the question of reality has equal validity with them. *The Rôle of the Type in Mental Processes* (pp. 498–514): W. B. PILLSBURY.—It is stated that consciousness has to do more with things than with sensations. The two current views that perception is a combination of sensations and that it is a group of movements are rejected. Things are "types" developed in experience out of a necessity of "harmonizing various experiences of the same object." The origin and nature of the "type" is explained as its meaning is illustrated in the processes of perception, memory, and action. *Philosophy in France,* 1910 (pp. 515–534): ANDRÉ LALANDE.—A résumé and brief criticism of various recent books on French philosophy. The emphasis is on religious philosophy. The chief works viewed are: J. J. Gourd: *La philosophie de la religion;* M. Charles Dunau: *Les deux idealismes;* M. Delvalué: *Rationalisme et tradition;* M. Parodi: *Le problème moral et la pensée contemporaine. Reviews of Books* (pp. 535–558): Theodore DeLaguna and Grace Andrus DeLaguna, *Dogmatism and Evolution: Studies in Modern Philosophy:* ARTHUR O. LOVEJOY. Edward Bradford Titchener, *A Text-book of Psychology:* JAMES ROWLAND ANGELL. Emile Bréhier, *Chrysippe:* G. S. BRETT. A. Meinong, *Über Annahmen:*

WILBUR M. URBAN. *Notices of New Books. Summaries of Articles. Notes.*

Kühtmann, Alfred. Zur Geschichte des Terminismus. Leipzig: Verlag von Quelle und Meyer. 1911. Pp. viii + 127. M. 4.20.

Marck, Siegfried. Die Platonische Ideen-Lehre in Ihren Motiven. Munich: C. H. Beck'sche Verlagsbuchhandlung. 1912. Pp. viii + 180.

Taylor, A. E. Varia Socratica: First Series. (St. Andrew's University Publications, No. IX.) Oxford: James Parker & Co. 1911. Pp. xii + 269.

NOTES AND NEWS

FOR an anthropological research expedition to the islands of Normandy, Fergusson and Goodenough, in British New Guinea, as we learn from the London *Times,* funds are being provided out of the Oxford University common fund and by several of the colleges. The work has been undertaken by Mr. David Jenness, of Balliol College, who proposes, unaccompanied, to spend a year amongst people who are admittedly cannibals. It is stipulated by the university, in contributing to the expedition, that the museum shall have the first offer of articles of interest which may be obtained. Assistance has been promised by the missionaries on Goodenough Island, including the use of a boat and native oarsmen. The first few weeks will be spent in cruising around the islands endeavoring to get on friendly terms with the people and in studying the trade relations. As the natives have sea-going canoes and trade with the neighboring coast and the island of Trobriand, 100 miles away, Mr. Jenness will endeavor to obtain the good will of one of the chiefs and settle down for about a year. Later he will proceed on a mission boat to Rossell Island, at the eastern end of the Louisiade Archipelago, to study some ethnological problems concerning the relationships of Oceanic peoples. Mr. Jenness has been provided with the latest scientific instruments, including a phonograph for recording native songs and speech.

IT is stated in the *Journal of the American Medical Association* that Professor Theodor Ziehen, director of the psychiatric and neurologic clinic in Berlin, will resign his position at the end of the winter semester and discontinue all medical work, in order to devote himself exclusively to research in psychology. For this purpose, he will remove to Wiesbaden, where he will erect for himself a private psychological laboratory.

DR. G. STANLEY HALL, president of Clark University, delivered the address at the inauguration of Dr. George E. Myers, principal of the State Manual Training School at Pittsburg, Kansas. The subject of the address was "Educational Efficiency."

PROFESSOR R. S. WOODWORTH, of Columbia University, is planning to spend a semester's leave of absence in visiting the psychological institutes of England and Germany.